Audit Report

OFFICE OF THE INSPECTOR GENERAL

HOTLINE ALLEGATIONS CONCERNING THE PROCUREMENT OF THE IMPROVED-REMOTELY MONITORED BATTLEFIELD SENSOR SYSTEM

Report No. 94-145 June 20, 1994

Department of Defense

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Acronyms

CBD	Commerce Business Daily
CECOM	Communications-Electronics Command
CLASSIC	Covert Local Area Sensor System for Intrusion Classification
EMD	Engineering and Manufacturing Development
FAR	Federal Acquisition Regulation
FAT	First Article Test
FOIA	Freedom of Information Act
I-REMBASS	Improved-Remotely Monitored Battlefield Sensor System

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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Report No. 94-145

June 20, 1994

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Hotline Allegations Concerning the Procurement of the Improved-Remotely Monitored Battlefield Sensor System (Project No. 4AS-8004)

Introduction

We are providing this final memorandum report for your information and use. The audit was performed in response to DoD Hotline allegations concerning the Army's procurement of the Improved-Remotely Monitored Battlefield Sensor System (I-REMBASS). Racal Communications, Incorporated (Racal), of Rockville, Maryland, alleged that the I-REMBASS program office made factually inaccurate statements in a letter explaining why the I-REMBASS system was selected for procurement instead of Racal's Covert Local Area Sensor System for Intrusion Classification (CLASSIC) to satisfy U.S. Special Operations Command's (the user) mission requirements.

Audit Results

The U.S. Army Communications-Electronics Command (CECOM) complied with acquisition procedures in awarding the I-REMBASS contract. The acquisition procedures and requirements are in the Federal Acquisition Regulation (FAR) and DoD Instruction 5000.2, "Defense Acquisition Policy and Procedures," February 23, 1991.

Also, the I-REMBASS program office correctly determined that the CLASSIC's system performance capabilities were less than those needed to satisfy the I-REMBASS user's mission requirements. The program office's determination was based on performance capabilities identified in Racal's CLASSIC brochure and a meeting held with Racal to discuss I-REMBASS requirements. Because Racal did not want to build the CLASSIC system to the user's requirements, Racal did not respond to CECOM's contract solicitation to manufacture I-REMBASS according to specifications.

In the July 28, 1993, letter to Racal, the program office correctly stated I-REMBASS system requirements and its demonstrated performance capabilities. However, the program office did make several incorrect statements concerning CLASSIC system performance capabilities based on misinterpretation of information or inappropriate assumptions in the absence of technical data in Racal's brochure that described CLASSIC system characteristics and capabilities. Enclosure 1 provides the results of our review of the program office's statements made in the July 28, 1993, letter.

In reference to Racal's Freedom of Information Act (FOIA) requests, CECOM did not process Racal's requests in accordance with DoD processing time requirements. Although untimely, the FOIA staff correctly withheld

I-REMBASS program information that met the criteria for exemption from mandatory disclosure under FOIA. During the audit, the FOIA office referred the withheld information to CECOM's legal office for a final determination on the releasability of the information.

Objectives

The audit was initiated in response to a Hotline allegation regarding I-REMBASS. The primary objective of the audit was to determine whether the I-REMBASS program office incorrectly explained why I-REMBASS was selected for procurement instead of alternative system proposals to satisfy the Army's remote ground sensor system requirements. The audit also evaluated related internal controls.

Scope and Methodology

This economy and efficiency audit was performed from March through April 1994 in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly included such tests of internal controls as deemed necessary. We reviewed data dated from March 1986 through April 1994 to accomplish our objectives. Data reviewed included market surveys, contract actions and award notifications announced in the Commerce Business Daily (CBD), contract justification and approval documents, and contract documents supporting CECOM's procurement of I-REMBASS. Program acquisition documents pertaining to I-REMBASS' operational requirements, military threats, testing, logistics, and budget were reviewed to determine I-REMBASS requirements and demonstrated performance. Also, we interviewed cognizant Army officials involved in the I-REMBASS program and Racal officials at the Rockville, Maryland, production facility to obtain first-hand knowledge of the CLASSIC system and the manufacturing operation. We did not rely on computer-generated data to develop conclusions on this audit. Enclosure 5 lists the organizations we visited or contacted.

Internal Controls

We assessed internal controls related to CECOM's procurement of the I-REMBASS system. Specifically, we reviewed the self-inspection and internal management control reviews that the Intelligence and Electronics Warfare Division performed in FYs 1992 and 1993. The audit did not identify any material internal control weaknesses as defined by DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987.

Prior Audits and Other Reviews

No other audit coverage of this specific topic has occurred in the last 5 years.

Background

Required Operational Capability. In November 1986, the Army identified an operational need for a small, lightweight ground sensor system in the required operational capability document for I-REMBASS. The I-REMBASS is to provide a world-wide deployable, day and night, all-weather surveillance and target classification warning system designed to detect personnel and tracked and wheeled vehicles. The I-REMBASS must be fully compatible with the Army's Remotely Monitored Battlefield Sensor System because the two systems are to complement each other in operation and to process messages from the Air Force's Base and Installation Security System and the Marine Corps' Tactical Remote Sensor System. In January 1994, the Army began fielding I-REMBASS with the Army's Special Operations Forces at Fort Bragg, North Carolina. Enclosure 2 describes I-REMBASS and CLASSIC system capabilities.

Federal Acquisition Regulations. FAR Part 5, "Publicizing Contract Actions," requires agencies to publish proposed contract actions and award notifications in the CBD. These notifications must appear in the CBD at least 15 days before the procurement solicitation is issued and allow potential sources at least 30 days response time to a CBD-announced procurement solicitation.

FAR Part 7, "Acquisition Planning," requires agencies to conduct market surveys for all acquisitions to promote full and open competition. When full and open competition is not required, agencies must still obtain competition to the maximum extent practicable. A market survey attempts to determine whether other qualified industry sources can satisfy the Government's requirements. The market survey may include written and telephone contacts of knowledgeable Government and non-Government experts regarding similar requirements, sources-sought announcements in pertinent publications (technical and scientific journals and the CBD), and contract solicitations.

FAR subpart 6.302-1, "Circumstances permitting other than full and open competition," allows agencies to award non-competitive contracts when only one responsible source and no other supplies will satisfy agency requirements. Supplies may be deemed to be available only from the original source when award to any other source would likely result in substantial duplication of cost to the Government that would not be recovered through competition, as in the continued production of highly specialized equipment. Further, contracting officers awarding contracts with other than full and open competition must prepare a written justification to use this authority and obtain required approvals. The director of the procuring activity must review and approve the justification statement for contracts between $1 million and $10 million; the agency's senior procurement executive for contracts must review and approve justification statements for more than $10 million.

Nondevelopmental Items. DoD Instruction 5000.2, Part 6, Section L, "Nondevelopmental Items," requires agencies to consider using nondevelopmental items before starting a research program to meet a military equipment requirement. However, the use of nondevelopmental items is not an inflexible requirement. In evaluating the suitability of using nondevelopmental

items, the DoD Instruction specifies several criteria to be evaluated, including the satisfaction of the system's operational, interoperability, and logistics support requirements.

Procurement Buy Out. On March 22, 1993, the Director of CECOM's procuring activity approved the contracting officer's justification for other than full and open competition for the I-REMBASS procurement buyout because only one responsible source, the system developer, could build I-REMBASS to specifications without level III engineering drawings[1]. On March 24, 1993, CECOM announced in the CBD its planned procurement of 100 I-REMBASS sets. CECOM reduced the procurement quantity from 100 to 88 I-REMBASS sets in April 1993 when the user reduced I-REMBASS requirements based on force structure reductions. An I-REMBASS set includes eight sensors, two repeaters, and two monitor-programmers.

In the CBD, CECOM stated that no other source had demonstrated the capability of meeting I-REMBASS requirements. CECOM announced that the procurement was restricted to the system developer's part numbers and that alternative systems must be compatible with existing equipment. Regardless, CECOM announced that all responsible sources could submit a contract proposal by May 12, 1993, for consideration. CECOM received no contractor proposals in response to this CBD procurement solicitation.

On September 2, 1993, CECOM awarded Martin Marietta (the system developer) the contract modification to build 88 I-REMBASS sets and spare parts for a cost of $9.9 million. The September 1993 contract modification increased I-REMBASS procurement quantities to 262 sets and contract costs to $41.1 million. Enclosure 3 contains details on the I-REMBASS development and procurement history.

Discussion

Consideration of Alternative Systems. Our review did not substantiate the Hotline allegation that the program office and CECOM did not give Racal's CLASSIC remote ground sensor system adequate consideration as an alternative system to satisfy I-REMBASS requirements. Specifically, the program office did review Racal's CLASSIC brochure to determine whether the CLASSIC system met the required operational capability in the areas of I-REMBASS' operational, interoperability, and logistics support requirements. The answer was no. In addition, Racal did not respond to the CBD procurement solicitation that would enable CECOM to further consider the acceptability of the CLASSIC as an alternative system to satisfy the Army's remote ground sensor system requirements.

Before awarding the I-REMBASS procurement contract, CECOM met with Racal officials on May 6, 1993, to discuss I-REMBASS contract requirements.

[1]Level III engineering drawings are the most detailed drawings of a system and support competitive procurements. The drawings are to include sufficient engineering detail to enable a competent manufacturer to build the system or component without further engineering work.

At the meeting, Racal said that it was not interested in building CLASSIC to meet the contract solicitation specifications. Instead, Racal offered the CLASSIC system as a more cost-effective alternative system to satisfy Army requirements. At the meeting, Racal acknowledged that the CLASSIC system's performance capabilities were less than those specified in the areas of I-REMBASS operational, interoperability, and logistics support requirements.

Freedom of Information Act Requests. The Freedom of Information Act provides the public a method to obtain Government information. DoD Regulation 5400.7-R, "DoD Freedom of Information Act Program," October 3, 1990, established DoD policies and procedures to implement FOIA. DoD Regulation 5400.7-R requires that FOIA offices reply to requests within 10 working days, unless a delay is authorized. In unusual circumstances, the response time may be extended 10 additional working days for a maximum of 20 working days processing. FOIA offices may refuse to release official records under nine exemptions, which are described in Enclosure 4.

Racal's FOIA requests for I-REMBASS program documentation were not processed within the 20-day allowable period because CECOM's FOIA office misunderstood CECOM procedures for obtaining a final determination on document releasability from CECOM's initial denial authority office. Racal submitted FOIA requests on:

o April 27, 1993, for a copy of the I-REMBASS and CLASSIC technical evaluation report;

o May 10, 1993, for copies of the I-REMBASS contract, briefing charts, justification and approval, and first article tests; and

o July 13, 1993, for a copy of the I-REMBASS program schedule.

On June 21, 1993, the FOIA office released 1,200 pages of contract documents to Racal. In the transmittal letter, the FOIA office informed Racal that the remaining documents requested were exempt from mandatory disclosure under FOIA exemptions 4 and 5. On July 13, 1993, Racal requested that the FOIA office refer the documents considered exempt from release to the CECOM initial denial authority officials for a determination on document releasability under FOIA. On July 19, 1993, CECOM's Office of the Chief Counsel informed Racal that no technical evaluation report had been prepared comparing the I-REMBASS and CLASSIC systems. The FOIA office referred Racal's July 13, 1993, request to the initial denial authority office for a final legal determination on the releasability of the documents. Because the FOIA office and the initial denial authority office misunderstood CECOM's procedures for processing FOIA appeals, a final legal determination was not made at the time on the releasability of the documents requested by Racal.

On April 12, 1994, the FOIA office informed Racal about the status of its FOIA requests and asked Racal to clarify whether it wanted only the final test reports or the test reports with supporting documentation. Also, the FOIA office advised Racal that the documents not released earlier were sent to CECOM's initial denial authority office for a legal determination and that Racal would be informed of the final determination on document releasability.

CECOM officials acknowledged that its FOIA procedures needed improvement. During the audit, CECOM initiated the formation of a Process Action Team to review and recommend changes to the FOIA program to ensure compliance with DoD requirements for timely processing of FOIA requests. We consider this action a positive response to problems noted with CECOM's FOIA processing procedures.

Conclusion

CECOM contracting officers and I-REMBASS program office staff complied with Federal and DoD acquisition procedures before awarding the I-REMBASS contract. Because CECOM did not possess level III engineering drawings, the most cost-effective and timely method for buying additional I-REMBASS sets was from the system developer, Martin Marietta. Because Martin Marietta developed the I-REMBASS, it was the only contractor with the technical capability to produce to specifications without the Government incurring additional costs for development, hardware testing, and logistic support.

CECOM stated that validated level III engineering drawings for I-REMBASS would be available by September 1994. If a future procurement is warranted, CECOM needs to solicit competitive sources so that the Government receives the lowest possible price by providing all qualified industry sources an opportunity to compete for the contract award using Government-provided I-REMBASS level III engineering drawings.

Management Comments

We provided a draft of this report to the addressees on May 16, 1994. Because we made no recommendations, no official comments were required and none were received. This report does not claim monetary benefits.

The courtesies extended to the audit staff are appreciated. If you have questions on this memorandum report, please contact Mr. John E. Meling, Program Director, at (703) 614-3994 (DSN 224-3994) or Mr. Michael H. Claypool, Project Manager, at (703) 614-1415 (DSN 224-1415). The audit team members are listed inside the back cover. Enclosure 6 lists the distribution of this report.

David K. Steensma

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Deputy Assistant Inspector General
for Auditing

Enclosures

Hotline Letter Assertions on Specific Army Statements

On October 14, 1993, the Office of the Inspector General, DoD, received a Hotline letter from Racal Communications, Incorporated (Racal), of Rockville, Maryland. Racal alleged that the I-REMBASS program office (hereafter called the Army) made factually inaccurate statements in a July 28, 1993, letter explaining why the I-REMBASS system was selected for procurement instead of Racal's CLASSIC system to satisfy U.S. Special Operations Command's (the user) mission requirements. The Army based its statements about the CLASSIC system on a Racal brochure that listed CLASSIC system characteristics and performance capabilities. Below we quote the Army's statements made in the July 28, 1993, letter to Racal and comment on our findings concerning each statement.

Statement 1. I-REMBASS has the ability to detect and classify vehicles out to 350 meters with the seismic/acoustic sensor - the CLASSIC system does not have this ability.

Audit Results. The Army's statement on I-REMBASS performance was verified to reported I-REMBASS test results. I-REMBASS seismic/acoustic sensor range detection capabilities were demonstrated in engineering and manufacturing development (EMD) field demonstration tests conducted in March and April 1986 and September 1990. In March 1992, the user issued a report, "User Test of the Improved-Remotely Monitored Battlefield Sensor System (I-REMBASS)," (User Test Report) that stated that I-REMBASS met the seismic/acoustic sensor range detection capability during field tests of the system.

The Army based its conclusion that the CLASSIC system did not have the required seismic and acoustic sensor capability on information in the Racal brochure. The brochure did not contain information on CLASSIC's seismic sensor detection range capability. Further, Racal did not provide the Army supplemental information on the sensor's range detection capability after its May 6, 1993, meeting with Army officials. During our visit, Racal provided supplemental CLASSIC information that stated that the seismic sensor can detect vehicles as far away as 200 meters.

Statement 2. I-REMBASS has an extremely low false alarm rate[1], that is, a maximum of one per 24 hours. The CLASSIC system false alarm rate is based on four alarms per hour.

[1]A false alarm is when the sensor incorrectly identifies a target when no recognizable stimulus event, such as heat or movement, has occurred in the operational environment.

Audit Results. The Army's statement on the I-REMBASS low false alarm rate was verified to the I-REMBASS contract specification and demonstrated satisfactorily during the first article test (FAT). The I-REMBASS contract specification for false alarm rate specifies a maximum of one false alarm during 24 hours of operation. The "Quality Inspection, Test and Evaluation Report (First Article Test Report)," December 1993, stated that the I-REMBASS met the false alarm rate requirement.

The Army incorrectly interpreted Racal's brochure information on the CLASSIC false alarm rate. The brochure stated that the CLASSIC system had a low false alarm rate but the false alarm rate was not defined. However, the brochure stated that CLASSIC's battery life was based on four alarms per hour. During our visit, Racal acknowledged that the CLASSIC system's demonstrated performance did not meet the low false alarm rate specified in the I-REMBASS contract specification.

Statement 3. The I-REMBASS repeater and sensors operate without degradation at the temperature extremes of minus 50 degrees Fahrenheit to plus 116 degrees Fahrenheit plus solar loading and survive storage temperatures between minus 70 degrees Fahrenheit to plus 160 degrees Fahrenheit; I-REMBASS sensors operate 30 days at minus 50 degrees Fahrenheit. Whereas, the CLASSIC systems sensors are said to operate 90 days at 20 degrees Centigrade (equivalent to 68 degrees Fahrenheit). The I-REMBASS life of 30 days is based on 1,000 activations per day while the CLASSIC system's life is based on four alarms per hour.

Audit Results. The Army's statements on I-REMBASS capabilities were verified to I-REMBASS contract specifications and demonstrated during FAT. Also, the development contractor successfully demonstrated that I-REMBASS would perform for 30 days based on 1,000 activations per day during battery life tests reported in May 1991.

The Army's statements on the CLASSIC system's operating temperatures and battery life were verified to the brochure. Racal's brochure stated that the CLASSIC system had a typical battery life of 90 days for sensors and 14 days for the repeater based on four activations per hour.

Statement 4. I-REMBASS sensors can withstand other severe environmental conditions without damage, such as salt atmosphere, vibration, shock, and rough handling. The CLASSIC system is unproven in these areas.

Audit Results. The Army's statement on I-REMBASS sensors' ability to withstand severe environmental conditions was supported by reported I-REMBASS test results. EMD and FAT environmental tests showed that I-REMBASS sensors successfully met contract specifications.

The Army incorrectly assumed that CLASSIC was unproven in this area because Racal's brochure did not mention CLASSIC's ability to operate in severe environmental conditions. During our visit, Racal advised that North Atlantic Treaty Organization countries had operationally deployed the CLASSIC

system for more than 10 years. However, Racal was unable to provide us test results documenting CLASSIC's ability to operate in the entire spectrum of environmental conditions specified in the I-REMBASS contract specification.

Statement 5. I-REMBASS has undergone operational testing, certifying its suitability. The CLASSIC system has not undergone such rigorous testing.

Audit Results. The Army's statement on I-REMBASS suitability was supported by I-REMBASS test results. The EMD "Human Engineering Test" report, December 1991, stated that the user found the system well designed for ease of operation and repair. Also, the March 1992 User Test Report stated that the system met the mission-essential functions of target detection, classification, and direction of travel.

The Army's statement on the CLASSIC system may be inaccurate because the Army did not know the extent of CLASSIC system testing. During our visit, Racal stated that the CLASSIC system has demonstrated world-wide suitability based on its use by about 20 countries for military, counter terrorist, and other operational missions in various environmental conditions. However, Racal was unable to provide us CLASSIC system test results documenting that the system would satisfy the entire range of I-REMBASS suitability requirements.

Statement 6. In determining target direction by the infrared sensor, the CLASSIC system requires two infrared sensors (or one infrared plus another type) to accomplish what I-REMBASS does with a single unit.

Audit Results. The Army's statement on the I-REMBASS infrared sensor was verified to the I-REMBASS contract specification. The I-REMBASS infrared sensor met the specified performance requirement during EMD, FAT, and user tests.

The Army incorrectly concluded that the CLASSIC system required two infrared sensors to determine target direction. The Racal brochure made available to the Army did not identify the number of sensors required to determine target direction. During our visit, Racal provided an updated CLASSIC brochure that indicated that the system has one infrared sensor with two heat detector elements for determining target direction.

Statement 7. The I-REMBASS will be deployed world-wide and has a fully synthesized tuning system to allow rapid changes by the user in the field to optimize its use in any host country. The CLASSIC system is unproven in this area.

Audit Results. The Army's statement on I-REMBASS being required to have a fully synthesized tuning system[2] capability was verified to requirements in the user's requirement document and reported as demonstrated in EMD, FAT, and user test reports.

[2]An electronic procedure that allows the monitor-programmer to adjust automatically to operator-selected radio frequencies.

The Army's statement on the CLASSIC system was verified to Racal's brochure that the Army reviewed in July 1993. The brochure stated that the system operated on a standard single frequency and that other standard radio frequencies were available, if needed. During our visit, Racal provided an updated CLASSIC brochure that stated that the CLASSIC system has a synthesized tuning system that can be preprogrammed at a field workshop using a personal computer.

Statement 8. Through significant testing under extremely varied and demanding conditions as required by our users, I-REMBASS has demonstrated a mean-time-between-failure[s] of 3,000 to 6,000 hours while operating under specified temperature, humidity, and vibration conditions. The predicted reliability exceeds 12,000 hours mean-time-between-failure[s]. The CLASSIC system is unproven in this area.

Audit Results. The Army's statement on I-REMBASS reliability was verified to requirements in the user's requirements document and reported as demonstrated in the FAT report.

The Army assumed that CLASSIC system was unproven in this area because the Racal brochure did not contain reliability information. The ability of the CLASSIC system to meet I-REMBASS reliability requirements could not be determined because Racal was unable to provide us CLASSIC system test results documenting that the system would satisfy specific I-REMBASS reliability requirements.

Statement 9. I-REMBASS produces very low spurious emissions to ensure that system operation does not cause interference to other equipment. The world-wide radio frequency spectrum compatibility makes conformance to Military Standard 461A essential. The CLASSIC system is unproven in this area.

Audit Results. The Army's statement on I-REMBASS emitting very low spurious emissions[3] was verified to requirements in the user's requirements document and reported as demonstrated in EMD and FAT electromagnetic interference tests required by Military Standard 461A, "Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference (EMI)," February 1971.

The Army assumed that the CLASSIC system was unproven in this area because Racal's brochure did not state whether the system met Military Standard 461A electromagnetic interference requirements. The ability of the CLASSIC system to meet Military Standard 461A requirements could not be determined because Racal was unable to provide CLASSIC system test results documenting that the system would satisfy the I-REMBASS electromagnetic interference requirements.

[3]Transmission of extraneous pulses of electrical energy.

Statement 10. The I-REMBASS repeater periodically reports its operational status, verifying that an absence of sensor messages is due to a lack of activity in that area rather than repeater failure. The CLASSIC system makes no mention of this capability.

Audit Results. The Army's statement on I-REMBASS reporting its operational status was verified to requirements in the contract specification and reported as demonstrated in the FAT report.

The Army's statement on the CLASSIC system was verified to Racal's brochure. During our visit, Racal stated that the CLASSIC system did not have this capability. However, Racal believed that CLASSIC system reliability was proven since the system is used world-wide by about 20 countries. Therefore, Racal believed the ability of the CLASSIC system to make a self-check of the system's operational status was unnecessary.

Statement 11. The I-REMBASS sensor provides an indication to the monitor if a jamming condition exists. The CLASSIC system does not address this requirement.

Audit Results. The Army's statement that the I-REMBASS sensors are required to indicate to the monitor whether a jamming condition exists was verified to the user's requirements document and reported as demonstrated in the FAT report.

The Army's statement on the CLASSIC system was verified to Racal's brochure. During our visit, Racal stated that the CLASSIC system did not have this capability.

Statement 12. The I-REMBASS repeater processes the Air Force Base and Installation Security System messages. The CLASSIC system does not address this requirement.

Audit Results. The Army's statement that the I-REMBASS repeater is required to process Air Force Base and Installation Security System messages (interoperability) was verified to the user's requirements document. In August 1988, the Air Force's report, "Base and Installation Security System, Remotely Monitored Battlefield Sensor System Development Test and Evaluation," stated that the Remotely Monitored Battlefield Sensor System demonstrated this system interoperability requirement.

The Army's statement on the CLASSIC system was verified to Racal's brochure. During our visit, Racal stated that the system interoperability requirement could be incorporated in the CLASSIC system design by modifying the system software.

Statement 13. The I-REMBASS sensors have a chemical agent resistant finish. The CLASSIC system does not address this requirement.

Audit Results. The Army's statement that the I-REMBASS sensors are required to have a chemical agent-resistant finish was verified to the I-REMBASS contract specification.

The Army's statement on the CLASSIC system was verified to Racal's brochure. During our visit, Racal stated that the CLASSIC system sensors did not have a chemical agent-resistant finish. However, Racal stated that it has the manufacturing capability to add the required finish to the CLASSIC sensors.

Statement 14. The I-REMBASS sensors require secure lighting displays. The light emitted must have a spectrum and amplitude that reduces the vulnerability of detection by Night Vision devices. The CLASSIC system does not address this requirement.

Audit Results. The Army's statement on I-REMBASS was not clear. The I-REMBASS monitor-programmer, rather than the sensors, is required to have a secure lighting display in accordance with the user's requirements document. The secure lighting display requirement for the I-REMBASS monitor-programmer was demonstrated during I-REMBASS EMD, FAT, and user tests.

The Racal brochure did not indicate whether the CLASSIC system monitor-programmer had an adjustable light display. During our visit, Racal stated that the CLASSIC system did not have this capability.

Statement 15. Introduction of a second system at this late date in the fielding process would require the Army to incur significant additional logistics costs necessary to support the system.

Audit Results. The Army's statement on significant logistics costs for using another system to replace I-REMBASS was valid. The Army informed Racal that Army logistics support costs for acquiring the CLASSIC system would include:

o preparation and verification of logistics documentation necessary for the standard Army supply system, such as Integrated Logistics Support Analysis documentation;

o a reprocurement package, including level III engineering drawings with full data rights;

o spare and repair parts necessary to support CLASSIC;

o development of separate operator and maintenance training manuals and courses; and

o hardware testing, such as first article testing and operational user tests.

Contract costs for the I-REMBASS logistics support totaled $3.0 million for spare parts, training, technical manuals, repair manuals, and technical data package (includes level III engineering drawings).

Description of I-REMBASS and CLASSIC Systems

Improved-Remotely Monitored Battlefield Sensor System

The I-REMBASS is a small, lightweight ground sensor system designed to detect and classify moving personnel and vehicles. The system consists of a display monitor-programmer unit, three sensors (infrared, magnetic, and seismic/acoustic), and a radio repeater unit for transmission of detections to the monitor-programmer. Each sensor weighs 4 pounds (including battery) and each repeater and monitor-programmer unit weighs 5 pounds (including batteries). The sensors and radio repeater can individually transmit to the monitor-programmer as far away as 9.3 miles at ground level (line-of-sight) or as far away as 18.6 miles for remote location surveillance. The transmission range can be extended with additional repeaters. The system's components can operate in temperatures ranging from minus 50 degrees Fahrenheit through plus 116 degrees Fahrenheit.

Covert Local Area Sensor System for Intrusion Classification

The CLASSIC is a small, lightweight ground sensor system designed to detect and classify moving personnel and vehicles. The system consists of the monitor display unit and three sensors (infrared, magnetic, and seismic). As an option, a radio repeater is available for transmission of detections to the monitor. Each sensor weighs 3 pounds (including batteries) and each radio repeater and monitor unit weighs 4 pounds (including batteries). The sensors and radio repeater can transmit individually to the monitor as far away as 4.3 miles at ground level (line-of-sight) or as far away as 8.6 miles[1] with the optional radio repeater for remote location surveillance. The transmission range can be extended with additional radio repeaters. The system's components can operate in temperatures ranging from minus 22 degrees Fahrenheit through plus 140 degrees Fahrenheit[2]. As an option, a Piezo cable provides a passive detection system for personnel and vehicle detection. The maximum length of the cable is 0.5 miles.

[1]Based on an updated CLASSIC brochure, the sensor now transmits about 12.4 miles and the radio repeater transmits about 18.6 miles at ground level.

[2]Based on an updated CLASSIC brochure, the equipment's operating temperatures range from minus 4 degrees Fahrenheit through plus 130 degrees Fahrenheit.

Procurement History

The Army began I-REMBASS development in 1986. CECOM awarded General Electric a non-competitive sole-source contract for the development of the sensors in 1986 and a competitive contract for the development of the repeater and the monitor-programmer in 1989. Program development costs on the two contracts totaled $7.3 million. The 1986 contract was awarded non-competitively because CECOM lacked a technical data package to enable a competitive procurement of the I-REMBASS. CECOM began the process to award the initial production contract in 1990.

Procurement Solicitation. On October 16, 1990, CECOM issued a sources sought announcement in the CBD that requested a response from commercial sources who were interested in and capable of producing the I-REMBASS without having level III engineering drawings. Ten sources responded to the CBD announcement. Seven sources indicated they would be interested once the drawings became available; two sources indicated an interest in performing the work but not without additional time and risk associated with another development effort; and the development contractor indicated that it could build to I-REMBASS specifications without Government-furnished level III engineering drawings. Racal did not respond to this CBD announcement.

In December 1990, CECOM documented the results of its completed market survey. CECOM concluded that no acceptable nondevelopmental item systems were available to satisfy I-REMBASS requirements. Also, CECOM concluded that the only source available to produce I-REMBASS was the system developer because level III engineering drawings were not available for a competitive procurement.

Initial Production Contract. On July 19, 1991, the Army awarded General Electric a non-competitive firm-fixed-price letter contract, contract DAAB07-91-C-M360, for the initial I-REMBASS production buy. This letter contract was based on an urgent requirement to replenish Remotely Monitored Battlefield Sensor System spares used during Operation Desert Storm. Contract costs totaled $4.5 million for sensors, radio repeaters, and accessories. The director of CECOM's procurement activity approved the contracting officer's written justification for awarding the letter contract with other than full and open competition in accordance with FAR subpart 6.302-2, "Unusual and compelling urgency." FAR subpart 6.302-2 authorizes non-competitive procurements when a delay in the award in the contract would result in serious injury to the Government.

On January 29, 1992, the Deputy Assistant Secretary of the Army (Procurement) approved the justification for other than full and open competition for additional production quantities on contract DAAB07-91-C-M360 because only Martin Marietta (General Electric's Government Communications Systems Department purchased by Martin Marietta) was capable of building the I-REMBASS without validated level III engineering

drawings. Also, the Deputy Assistant Secretary proposed that follow-on production be awarded on a competitive basis using the level III engineering drawings scheduled to be delivered to CECOM in September 1992.

On June 17, 1992, CECOM definitized letter contract DAAB07-91-C-M360 as a non-competitive firm-fixed-price contract. The definitized contract cost $19.4 million for 100 I-REMBASS sets, spare parts, technical data package (includes level III engineering drawings), warranty, test documentation, training, and test equipment. Through March 1993, CECOM had modified the contract to increase total quantities ordered to 174 I-REMBASS sets and the contract cost to $31.2 million. On September 2, 1993, the Army awarded Martin Marietta another contract modification costing $9.96 million to build 88 sets. The contract modification increased I-REMBASS procurement quantities to 262 sets and contract costs to $41.1 million.

Design Change. On May 20, 1992, the user required CECOM to make two major design modifications to the I-REMBASS production configuration at a production in-process review. As a result, CECOM modified contract DAAB07-91-C-M360 to incorporate engineering change proposals for helicopter acoustical detection and graphic display of sensor message data. The two modifications invalidated more than 40 percent of the level III engineering drawings associated with the sensors, repeater, and monitor-programmer. CECOM stated that the level III engineering drawings will have to be revalidated at the completion of the I-REMBASS test program. CECOM officials estimated that validated level III engineering drawings should be ready for Government acceptance by September 1994.

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Organizations Visited or Contacted

Office of the Secretary of Defense

Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), Washington, DC

Department of the Army

Assistant Secretary of the Army (Research, Development and Acquisition), Washington, DC
Deputy Chief of Staff for Operations and Plans, Washington, DC
Army Materiel Command
- Headquarters, Army Materiel Command, Alexandria, VA
- Army Combat System Test Activity, Aberdeen Proving Grounds, MD
- Army Industrial Engineering Activity, Rock Island, IL
- Army Materiel Systems Analysis Activity, Aberdeen Proving Grounds, MD

Army Operational Test and Evaluation Command, Alexandria, VA
Army Program Executive Office, Intelligence Warfare, Warrenton, VA
U.S. Army Project Manager, Electronic Warfare/Reconnaissance Surveillance and Target Acquisition, Fort Monmouth, NJ
Army Intelligence Center School, Fort Huachuca, AZ
Army Audit Agency, Alexandria, VA

Other Government Organization

General Accounting Office, Fort Monmouth, NJ

Non-Government Organization

Canadian National Defence Headquarters, Director Land Requirements, Director General Land Force Development, Ottawa, Canada

Contractor

Racal Communications, Incorporated, Rockville, MD

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